



Homework 4 Stacks

1. Describe why a stack is not a suitable data structure for holding client records at a call centre. Suggest a more suitable data structure and justify why it is suitable. [4]
2. If a stack is implemented as a dynamic data structure, what bounds the number of items that can be pushed? [1]
3. The operation `peek()` returns the top item of a stack without removing it from the stack.
What should happen if a `peek()` is attempted on an empty stack? [1]
4. Complete the following to show the state of a stack after the indicated operations.
The stack can only hold 4 items in total. [4]

Instruction	Stack	Front	Result
<code>stack = new array(4)</code>	<code>[]</code>	-1	
<code>push(rabbit)</code>			
<code>push(fox)</code>			
<code>push(mouse)</code>			
<code>peek()</code>			
<code>pop()</code>			
<code>pop()</code>			
<code>push(hedgehog)</code>			
<code>push(magpie)</code>			
<code>push(badger)</code>			
<code>isFull()</code>			
<code>peek()</code>			
<code>pop()</code>			
<code>pop()</code>			
<code>pop()</code>			
<code>pop()</code>			
<code>isEmpty()</code>			



[Total 10 Marks]